

the safety of items of glazing not requisite for driver visibility.

NHTSA has also decided to terminate the rulemaking on LexaMar's request concerning light sources because there was insufficient information to justify amending the Standard to permit the use of the xenon arc test. The agency notes that compared to the xenon arc test, the carbon arc test accelerates the weathering process and thus may more fully evaluate the long term effects of the weathering of plastic glazing.

NHTSA notes that ANSI and the Society of Automotive Engineers (SAE) are currently evaluating the use of a xenon arc source. The agency will continue to monitor these activities and may conduct future rulemaking about the xenon arc source, depending on the outcome of SAE's and ANSI's research.

III. Applicability of Test 1, "Light Stability" to Laminated Glass and Glazing

Test Number 1, "Light Stability," evaluates the regular (parallel) luminous transmittance of glass and glass-plastic glazing (referred to as Item 3 and Item 16 glazing) after being exposed to simulated sunlight over an extended period of time. The light stability test requires that the glazing specimen retain at least 70 percent of the original transmittance and be free of defects, which are defined as bubbles or other noticeable decomposition other than slight discoloration.

On October 11, 1989, NHTSA proposed that Item 3 and Item 16 glazing need not be subject to the light stability test. (54 FR 41632). The notice stated the agency's tentative conclusion that there was no need to subject Item 3 and Item 16 glazing to any measurements of optical quality since these items of glazing are used only in areas not requisite for driving visibility.

As explained above, respondents to the agency's request for information about exposure to simulated sunlight stated that such exposure may cause plastic glazing to undergo physical changes in its strength properties. Accordingly, the agency's proposal not to subject Item 3 glazing to Test No. 1 appears to have been inappropriate, since that test also assesses glazing strength. The agency further concludes that Test No. 1 should not be applied to Item 16 glazing since Test No. 16, which is already required for this item, is comparable to Test No. 1.

Based on the above considerations, the agency is terminating the two rulemakings related to plastic glazing used in areas not requisite for driving visibility.

Authority: 15 U.S.C.; delegations of authority at 49 CFR 1.50 and 501.8.

Issued on: May 10, 1993.

Barry Felrice,

Associate Administrator for Rulemaking.

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; 90-Day Finding and Commencement of Status Review for a Petition to List the Bull Trout

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of petition finding and status review.

SUMMARY: The U.S. Fish and Wildlife Service (Service) announces a 90-day finding on a petition to list the bull trout (*Salvelinus confluentus*) under the Endangered Species Act of 1973, as amended (Act). The petition was found to present substantial information indicating the requested action may be warranted. Through issuance of this notice, the Service is commencing a formal review of the status of the bull trout. Information regarding the species is requested.

DATES: The finding in this notice was made on May 10, 1993. Comments and materials related to this notice may be submitted to the Field Supervisor, at the address below until further notice. All comments and materials should be submitted at the earliest possible date to ensure their use in the final decision.

ADDRESSES: Data, information, comments or questions concerning the status of the petitioned species described below should be submitted to the Field Supervisor, Olympia Ecological Services Office, 3704 Griffin Lane SE., suite 102, Olympia, Washington 98501. The petition, 90-day finding, supporting data and comments are available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: David C. Frederick, Field Supervisor, at the address above or 206/753-9440.

SUPPLEMENTARY INFORMATION:

Background

Section 4(b)(3)(A) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1533) (Act) requires that the Service make a finding on whether a

petition to list, delist, or reclassify a species presents substantial scientific or commercial information indicating that the petitioned action may be warranted. To the maximum extent practicable, this finding is to be made within 90 days of the receipt of the petition, and the finding is to be published promptly in the Federal Register. If the Service finds that a petition presents substantial information indicating that the requested action may be warranted, then the Service initiates a status review on that species. Section 4(b)(3)(B) of the Act requires the Service to make a finding as to whether or not the petitioned action is warranted within one year of receipt of a petition that presents substantial information. With this Federal Register notice, the Service announces a positive 90-day finding on the petition to list the bull trout (*Salvelinus confluentus*) as endangered and initiates a review of the species' status.

This finding is based on various documents, including published and unpublished studies, agency files, field survey records, and consultations with Service and other Federal and State personnel. All documents are on file in the Fish and Wildlife Service Ecological Services Office in Olympia, Washington.

On October 30, 1992, the Service received a petition to list the bull trout as an endangered species throughout its range. The petitioners also requested the emergency listing of bull trout populations in a number of select "aquatic ecosystems" if biological information indicates the species is in imminent danger of extinction. The petition was submitted by the following non-profit conservation organizations in Montana: Alliance for the Wild Rockies, Inc., Friends of the Wild Swan, and Swan View Coalition. A letter acknowledging receipt of the petition was mailed to each of the petitioners on November 19, 1992. On January 7, 1993, the Service received an additional petition, submitted by the Oregon Chapter of the American Fisheries Society, requesting the listing of bull trout within the Upper Klamath River Basin. The Service will not evaluate the second petition separately because that request is already being evaluated in response to the first petition. Information submitted with the second petition would instead be considered as supporting information for the original range-wide petition.

The bull trout is a wide-ranging char with an historical distribution that included most drainages from the headwaters of the Yukon to northern California and Nevada, and from the

coast of British Columbia and Washington to headwater streams on the east side of the Continental Divide (Haas and McPhail 1991). The petitions and accompanying documentation indicate the bull trout has been and continues to be in serious decline throughout its historical range due to habitat degradation and loss, overharvest, genetic isolation, competition, and hybridization with introduced species.

Life History Information

Bull trout are a relatively large, native western char, similar in appearance to Dolly Varden (*Salvelinus malma*) and brook trout (*S. fontinalis*). The taxonomic classification of char has been fraught with difficulty. Bull trout are closely related to Dolly Varden and are sympatric with Dolly Varden over parts of their range, most notably in the Puget Sound region of Washington State. Characteristics distinguishing the two species, as well as a taxonomic description of bull trout, are presented by Cavender (1978). A principal component analysis using a series of morphologic measurements by both Dolly Varden and bull trout supported Cavender's designation separating the two species (Hass and McPhail 1991), and in areas where the two species occurred together, found no evidence of interbreeding. Of the two species, Dolly Varden are coastal and primarily anadromous, and bull trout are an inland species with resident or fluvial (i.e., migrating from larger rivers to spawn in smaller streams), adfluvial (i.e., migrating from lakes and reservoirs to spawn in streams), or anadromous migration patterns. However, Dolly Varden are more prone to anadromy than bull trout, perhaps due to their coastal distribution. Hybridization between brook trout and bull trout can be frequent when both species occur together, and the resulting hybrids are almost always sterile (Leary *et al.* 1991).

Bull trout are cold water salmonids, probably achieving their widest distribution during and immediately following the last glaciation (Bond 1992), and are rarely found in streams with a maximum temperature greater than 18°C. Optimal temperatures for embryo development are between 2° and 4°C (Pratt 1992). Sexual maturity is typically reached at age 5 or 6. Spawning occurs in the fall (September–October), in low gradient streams or stream reaches, with water temperatures below 9° to 10°C, over uncompacted gravel substrates, with water velocities from 0.2 to 0.6 meters per second (Pratt 1992; Fraley and Shepard 1989). Bull trout may prefer streams with groundwater inflow (springs) for

spawning (Pratt 1992). Among other variables (e.g., cover elements, flow refugia), the presence and percent composition of fines (sediments less than 6.35 millimeters in diameter) within spawning substrates exerts a particularly direct affect on successful spawning, fry emergence, and juvenile survival (Weaver and Fraley 1991).

Juvenile and resident bull trout are primarily insectivorous, and benthic in distribution. Fluvial and adfluvial migrating bull trout tend toward piscivory with increasing size (Goetz 1989). Bull trout use of larger waters may be complex and include extensive spawning migrations.

Status Information

In recent years, Federal, State, and private organizations have become increasingly concerned about the status of bull trout. An interagency working group of Federal and State biologists has been established to coordinate State by State evaluations of population status, bull trout distribution maps, and development of management plans. Those efforts are ongoing, with final products expected during the upcoming year. The Montana Department of Fish, Wildlife, and Parks recently released a status review of the bull trout (Thomas 1992) and Washington's Department of Wildlife, which manages resident fish, recently released a draft management and recovery plan for bull trout and Dolly Varden (Washington Department of Wildlife (WDW) 1992). In 1990, the Nevada Department of Wildlife also released a draft bull trout management plan (Johnson 1990). Although population trend data have not been uniformly collected throughout the species' range, existing information indicates that the number and distribution of populations have been reduced in recent times. The following sections provide a general overview of population status by state and in Canada.

Montana

Historical information suggests bull trout were widely distributed throughout western Montana (Thomas 1992). The species' current distribution is known to be less than its historical range. Using information contained in the Interagency Database, Thomas (1992) estimates that bull trout are known to occur in no more than 42 percent of the river and lake reaches in western Montana, including tributaries and portions of the following river basins: Flathead, Swan, Clark Fork, Blackfoot, Bitterroot, Kootenai, and St. Mary's. Of these systems, the Flathead and Swan have been the most

extensively studied. The Flathead River system alone contains 30 percent of the surveyed stream reaches that support bull trout. According to Thomas (1992), bull trout populations are declining throughout the majority of drainages in Montana. Status information obtained through personal interviews with Federal, state, and tribal biologists was summarized by Thomas (1992). Risk of extinction, based on fish abundance, habitat value, and risk of hybridization with brook trout, was subsequently determined for 831 stream reaches that were known to support bull trout. Ratings ranged from 3 (lowest risk) to 12 (highest risk). Only 32 reaches (4 percent) had a low risk of extinction (rating 3, 4, or 5), while 223 reaches (27 percent) had a high risk (rating 10, 11, or 12). The remaining 576 reaches (69 percent) were of moderate risk. The author noted that these ratings were to be used primarily as a measure of relative risk.

Redd (spawning nest) counts have been used frequently to evaluate population levels, stability, and distribution of bull trout (Graham *et al.* 1980; Pratt 1985). Recent redd counts within the upper Flathead River basin, long considered to be the species' stronghold, have led to an increased concern for the status of this population. The 1992 redd counts were 72 percent and 54 percent lower than the previous 13-year averages for the North Fork and Middle Fork Flathead, respectively (Weaver 1992). A decline in redd counts and/or low numbers of adults and juveniles have also been noted within the Clark Fork, Kootenai, and Blackfoot River systems (Peters 1990; Thomas 1992). Bull trout within the mainstem Bitterroot are believed to be extinct; remaining, isolated populations are restricted to the headwaters of pristine drainages. The Swan River drainage above Bigfork Dam appears to support a more stable population; redd counts in 1992 exceeded the previous 10-year average by 24 percent (Rumsey 1992).

Idaho

Published trend data are generally scant for bull trout populations in Idaho. The petitioners used information contained in various Idaho Department of Fish and Game reports to map the historic distribution of bull trout. According to this map, the species' historic distribution included the Snake and Bruneau River system in southwest Idaho, as well as the Salmon, Clearwater, St. Joe, Coeur D'Alene, Pend Oreille, Priest Lake, and Kootenai Rivers in central and north Idaho. Bull trout were also present in the Jarbidge River drainage in southern Idaho (Warren and

Partridge 1992). According to the petition, bull trout have been extirpated from the Snake and Bruneau Rivers. In 1992, Warren and Partridge (1992) were unable to detect bull trout in any of the 19 sampling points located along the mainstem and two forks of the Jarbidge River in Idaho. It was speculated that warmer water temperatures due to drought conditions may be responsible for the species' disappearance. Remaining population levels on the lower St. Joe and Kootenai Rivers may be insufficient to maintain viability of the bull trout populations in those systems (Ned Horner, Idaho Department of Fish and Game, pers. comm. 1993). Redd counts conducted in 1992 on the upper St. Joe River revealed only 58 confirmed redds in more than 70 miles surveyed (USDA 1992a). Redd counts in spawning tributaries to Pend Oreille Lake have been steadily declining over time (Horner, pers. comm., 1993). Bull trout have essentially been extirpated from the Coeur d'Alene system (Horner, pers. comm., 1993; Bill Horton, Idaho Department of Fish and Game, pers. comm., 1993; Dave Cross, U.S. Forest Service, pers. comm., 1993). Extinction risks were evaluated for bull trout populations in the Idaho Panhandle National Forests (USDA 1992b). Although population data were lacking, most populations were suspected to have a moderate to high risk of extinction.

According to Schill (1992), monitoring conducted on 43 Idaho streams utilized by anadromous fish species revealed a steady decline in mean densities of bull trout since 1985, from 0.132 to 0.048 fish per 100 square meters, although low water levels may have altered normal species distribution patterns. Further, bull trout were detected in only 24 percent of stream surveys conducted since 1985 and where present, densities were relatively low. Spawning escapement in the Rapid River has been variable in past years, but was relatively high in 1991 (Schill 1992).

Washington

The historic distribution of bull trout in Washington once included most major drainages east and west of the Cascade crest, except for the southwest corner of the State and the area south and east of the Columbia River and north of the Snake River (Goetz 1989; Mongillo 1992). Both abundance and distribution of bull trout in Washington has since declined particularly in eastern drainages (Goetz 1989; Mongillo 1992). The Okanogan, Lake Chelan, and lower Yakima populations are not extinct, and many others statewide have

been fragmented or isolated. Bull trout numbers in the mainstem Columbia have been drastically reduced from historic levels; remaining individuals are usually associated with larger tributary populations (Brown 1992a; Mongillo 1992). According to Brown (1992b), bull trout in Washington are considered "vulnerable," with a portion of existing populations at risk of becoming threatened or endangered.

The Washington Department of Wildlife recently issued a draft management and recovery plan for both bull trout and Dolly Varden (WDW 1992). Both species were addressed due to their similar life histories and taxonomy. According to the draft plan, 77 distinct populations of bull trout/Dolly Varden currently exist in Washington. Only 35 populations had adequate information available to allow for an analysis of risk. Of these 35 populations, 43 percent (15 populations) are at moderate to high risk of extinction, 40 percent (14 populations) are at low risk, and 17 percent (6 populations) are at no immediate risk (Mongillo 1992). Brown (1992a) suggests that a wide zone of bull trout/Dolly Varden hybridization or introgression may exist where coastal populations are believed to be sympatric. A clearer understanding of the genetic distinctiveness of sympatric populations in western Washington would greatly assist in understanding and evaluating either species' status.

Oregon

As mapped by the petitioners, bull trout were historically found in most Willamette River streams west of the Cascades, most major tributaries of the Columbia and Snake Rivers east of the Cascades, and in streams of the Klamath basin. Presently, bull trout are confined primarily to headwater tributaries to the Columbia, Snake, and Klamath Rivers (Ratliff and Howell 1992). Additionally, a genetic analysis of bull trout from the Columbia and Klamath River systems determined that bull trout in the Klamath River are genetically distinct from Columbia River populations (Leary *et al.* 1991). Ratliff and Howell (1992) compiled statewide information on the location and status of bull trout populations in Oregon, classifying existing populations into five extinction risk categories. This classification was based on information obtained from various Federal, state, and private entities. Of the 65 identified populations, 9 have a low risk of extinction, 13 are of special concern, 19 are of moderate extinction risk, 12 are at high risk, and another 12 are probably extinct (Ratliff and Howell 1992). The

petitioners state that within the Klamath River basin, bull trout have not been documented in the north or south fork of the Sprague River since 1962, and that remaining populations exist in only seven area streams. They further state that estimates of effective population size in these 7 streams range from 11 to 201 individuals; well below the range of 1,000 to 10,000 needed to maintain minimum population viability.

California and Nevada

Northern California and Nevada are on the southern fringe of the historical distribution of bull trout. Bull trout were once native to the lower McCloud River in northern California, but the last confirmed occurrence was from two angler-caught fish in 1975 (Rode 1990). Bull trout were designated an endangered species in 1980 by the State of California, and an attempt was made to reintroduce bull trout with progeny from the Klamath basin in Oregon (Howell and Buchanan 1992). It is not known whether this reintroduction was successful. Bull trout populations in Nevada are confined to the Jarbidge River basin, and persist in low densities near headwater areas (Johnson 1990). Historic occurrences of bull trout were only recorded in the Jarbidge system (Johnson 1990).

Canada

The historic distribution of bull trout in Canada is believed to have extended from the headwaters of the Yukon south through British Columbia and Alberta, reaching the coast in British Columbia only at the Fraser River (Haas and McPhail 1991). The petitioners reference personal communications with several Canadian biologists who state that the species is in a serious and steady decline throughout Alberta, with an associated reduction in the scope of its range. The status of British Columbia's bull trout populations is less clear.

Threats

Bull trout are particularly sensitive to environmental disturbances (Fraley *et al.* 1989; Howell and Buchanan 1992; and Thomas 1992). Information contained in both petitions and the Service's files indicate the bull trout may be threatened by a variety of factors including: Habitat degradation and loss; population fragmentation and genetic isolation; competition; hybridization with introduced species; and overharvest (Fraley *et al.* 1989; Rode 1990; Meehan and Bjornn 1991; Brown 1992b; Howell and Buchanan 1992; Thomas 1992; and WDW 1992). Other factors, such as inadequate regulatory

mechanisms and grazing, have had a variable effect on the species and its habitat. The cumulative effects of these various threats to bull trout should be evaluated.

The greatest risks facing the species are associated with habitat loss and degradation, and the isolation of populations. The loss of high quality spawning and juvenile rearing habitat has been implicated as the primary reason for bull trout population declines (Fraley *et al.* 1989; Goetz 1989; Brown 1992b; and Ratliff and Howell 1992). Land use activities that increase sedimentation, reduce water quality, and alter stream morphology have seriously degraded bull trout habitat and reduced bull trout reproductive success across the species' range (Shepard *et al.* 1984; Fraley *et al.* 1989; Brown 1992b; Ratliff and Howell 1992; and Thomas 1992). Higher water temperatures as a result of low flows or lack of stream cover are also suspected of reducing bull trout populations (Ratliff and Howell 1992) and altering movement or distribution of fish within a system (Warren and Partridge 1992).

The construction of dams has threatened bull trout by blocking migration patterns and increasing the risks associated with genetic isolation (Bond 1992; Ratliff and Howell 1992; Thomas 1992). Construction of the McCloud Dam is primarily responsible for the extirpation of bull trout from the McCloud River in California (Rode 1990). Dams along the length of the Columbia River have significantly altered habitat characteristics important to bull trout and reduced trout access to historic spawning tributaries (Brown 1992). The construction of Hungry Horse, Bigfork, and Kerr Dams in Montana has blocked or eliminated bull trout migration to historic spawning areas and reduced or nearly eliminated genetic exchange between the Flathead, Swan, and Clark Fork systems (Fraley *et al.* 1989; and Thomas 1992). Barriers to passage have also been implicated in

changing bull trout life history patterns from fluvial to adfluvial (Goetz 1989); the ramifications of these changes are not well understood. Fragmentation of drainage networks can exacerbate the difficulties facing declining populations (Ratliff and Howell 1992) and may lead to the extinction of certain fishes (Sheldon 1988).

Bull trout are susceptible to fishing pressure due to their aggressive nature and relatively large size. Overfishing, illegal harvest, and even historic bounties have been identified as risks to bull trout populations in Oregon (Ratliff and Howell 1992), Washington, (Brown 1992b; and WDW 1992), Nevada (Johnson 1990), Montana (Thomas 1992), and California (Rode 1990). Recent changes in state fishing regulations have reduced this threat in many States, but specific improvements or remaining risks have yet to be evaluated rangewide.

Hybridization and competition with introduced brook trout may also threaten bull trout populations. Hybridization with brook trout, and the production of often sterile hybrids, may be responsible for population declines and could pose a serious threat to some populations (Goetz 1989; Rode 1990; Leary *et al.* 1991; Brown 1992b; Dambacher *et al.* 1992; Markle 1992; and Thomas 1992). In western Montana, Leary *et al.* (1991) determined that hybridization with brook trout resulted in displacement of bull trout from an area where the species was previously the predominant fish sampled.

After reviewing the petition and information contained in our files, the Service determines that substantial information has been presented indicating that listing may be warranted, and a status review of the species is hereby initiated. As a part of this review, the Service will evaluate the status of distinct population segments and determine whether listing is warranted for either the species

rangewide or certain distinct population segments.

The Service would appreciate any additional data, comments and suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning the status of the bull trout, *Salvelinus confluentus*. The following is of particular interest to the Service:

- (1) Genetic variation within and between populations of bull trout, as well as between sympatric populations of bull trout and Dolly Varden;
- (2) The extent of genetic exchange between resident, fluvial, adfluvial, and anadromous forms;
- (3) Historic and current population data, which may assist in determining long-term population trends; and
- (4) The existence and status of distinct population segments.

References Cited

A complete list of all references cited herein, as well as others, is available upon request (see ADDRESSES section).

Authors

The authors of this notice are Carolyn Scafidi of the Olympia, Washington Ecological Services Office, and Ron Rhew of the Portland, Oregon Ecological Services Office (see ADDRESSES section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Authority: The authority for this action is the Endangered Species Act of 1973, as amended; 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

Dated: May 10, 1993.

Richard N. Smith,

Acting Director, U.S. Fish and Wildlife Service.

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